

What is claimed is:

1. An integrated broadcast reception system for use in a hand-held telecommunication device for receiving broadcast signals, wherein the hand-held
5 telecommunication device has a device body, the reception system comprising:
an electrically non-conductive substrate located inside the device body;
an electrically conductive element, disposed on the substrate, for receiving the broadcast signals; and
a signal processing module disposed on the substrate adjacent and electronically
10 connected to one end of the electrically conductive element, responsive to the received signals, for processing the received signals.
2. The broadcast reception system of claim 1, wherein the hand-held telecommunication device includes a chassis within the device body for disposing
15 telecommunication components, and wherein the electrically non-conductive substrate is a part of the chassis.
3. The broadcast reception system of claim 1, wherein the electrically non-conductive substrate is made of a rigid material.
- 20 4. The broadcast reception system of claim 1, wherein the electrically non-conductive substrate is made of a flexible material.
5. The broadcast reception system of claim 1, wherein the electrically conductive
25 element has a meandering shape for reducing the size of the electrically non-conductive substrate.
6. The broadcast reception system of claim 1, wherein the physical length of the electrically conductive element is substantially smaller than a quarter-wavelength of the
30 received signals.

7. The broadcast reception system of claim 1, wherein the physical length of the electrically non-conductive substrate is substantially smaller than a quarter-wavelength of the received signals.

5 8. The broadcast reception system of claim 1, wherein the electrically conductive element is disposed on one side of the electrically non-conductive substrate.

9. The broadcast reception system of claim 1, wherein the electrically conductive element is disposed on both sides of the electrically non-conductive substrate.

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10. The broadcast reception system of claim 1, wherein the electrically conductive element is wound around the electrically non-conductive substrate.

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11. The broadcast reception system of claim 4, wherein the electrically non-conductive substrate is made into a compact shape to be fitted in the device body.

12. The broadcast reception system of claim 1, wherein the electrically conductive element is a wound coil.

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13. The broadcast reception system of claim 1, wherein the electrically conductive element has a helical shape.

14. The broadcast reception system of claim 1, wherein the broadcast signals are frequency-modulated signals.

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15. The broadcast reception system of claim 14, wherein the broadcast signals are substantially in a frequency range of 88 MHz - 105 MHz.

16. The broadcast reception system of claim 1, wherein the broadcast signals are digital broadcast signals.

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17. The broadcast reception system of claim 16, wherein the broadcast signals are substantially in a frequency range of 88 MHz - 105 MHz.

18. The broadcast reception system of claim 16, wherein the broadcast signals are substantially in a frequency of 200 MHz.

5 19. The broadcast reception system of claim 1, wherein the signal processing module comprises an active circuit, responsive to the received signals, for providing amplified signals.

10 20. The broadcast reception system of claim 19, wherein the active circuit is controllable for adjusting a gain of the amplified signals.

21. The broadcast reception system of claim 1, wherein the signal processing module comprises a band-tuning circuit, responsive to the received signals, for selecting a broadcasting frequency band for providing band-tuned signals.

15 22. The broadcast reception system of claim 21, wherein the signal processing module further comprises an amplification device, responsive to the band-tuned signals, for providing amplified signals.

20 23. A mobile phone capable of receiving broadcast signals, comprising:
a housing;
an internal broadcast reception system, disposed within the housing, wherein the reception system comprises:
an electrically non-conductive substrate located inside the device body;
25 an electrically conductive element, disposed on the substrate, for receiving the broadcast signals; and
a signal processing module disposed on the substrate adjacent and electronically connected to one end of the electrically conductive element, responsive to the received signals, for providing pre-processed signals; and
30 means, responsive to the pre-processed signals, for providing audio signals indicative of the broadcast signals.

24. The mobile phone of claim 23, wherein the broadcast signals are substantially in a frequency range of 88 MHz - 105 MHz.

25. The mobile phone of claim 23, wherein the broadcast signals are substantially in a frequency range of 53 MHz - 99 MHz.

26. The mobile phone of claim 23, wherein the broadcast signals are digital broadcast signals.

27. The mobile phone of claim 26, wherein the broadcast signals are in a frequency range around 200 MHz.

28. The mobile phone of claim 26, wherein said providing means comprises a converter, responsive to the pre-processed signals, for providing signals in a digital form, wherein the audio signals are provided based on the signals in the digital form.

29. The mobile phone of claim 26, wherein said providing means comprises further means for controlling the signal processing module for selecting a broadcasting frequency band, wherein the pre-processed signals are indicative of the broadcast signals of the selected frequency band.

30. The mobile phone of claim 29, wherein said providing means comprises further means for selecting a broadcast channel in the broadcasting frequency band.

31. The mobile phone of claim 26, wherein said providing means comprises further means for selecting a broadcast channel in a broadcast frequency band.

32. The mobile phone of claim 23, wherein the broadcast signals are frequency-modulated signals.

33. The mobile phone of claim 32, wherein the signal processing module comprises a band-tuning circuit, responsive to the received signals, for selecting a broadcasting frequency band.

5 34. The mobile phone of claim 33, wherein the selected frequency band is substantially within a range of 88 MHz and 108 MHz.

35. The mobile phone of claim 32, wherein said providing means comprises a tuning circuit for selecting a broadcast channel in a broadcast frequency band for providing
10 further signals indicative of the broadcast of the selected channel.

36. The mobile phone of claim 35, wherein said providing means further comprises a converter, responsive to the further signals, for providing the audio signals.

15 37. The mobile phone of claim 23, further comprising a chassis within the housing for disposing said providing means, wherein the hand-held telecommunication device includes a chassis, and wherein the electrically non-conductive substrate is a part of the chassis.

20 38. The mobile phone of claim 37, wherein the electrically non-conductive substrate is made of a rigid material mechanically linked to the chassis and the integrated broadcast reception system is electronically linked to the chassis.

25 39. The mobile phone of claim 37, wherein the electrically non-conductive substrate is made of a flexible material mechanically linked to the chassis and the integrated broadcast reception system is electronically linked to the chassis.

30 40. The mobile phone of claim 23, wherein the electrically conductive element has a meandering or wound shape for reducing the size of the electrically non-conductive substrate.